CHANGE REQUEST for FY 08-09 BUDGET REQUEST CYCLE

Department:	Department of Natural Resources
Priority Number:	10 of 18
Change Request Title:	CWCB Hydrographer and Vehicle

SELECT ONE (click on box):

☒ Decision Item FY 08-09
☐ Base Reduction Item FY 08-09
☐ Supplemental Request FY 07-08
☐ Budget Request Amendment FY 08-09

SELECT ONE (click on box):

Supplemental or Budget Request Amendment Criterion:
☒ Not a Supplemental or Budget Request Amendment
☐ An emergency
☐ A technical error which has a substantial effect on the operation of the program
☐ New data resulting in substantial changes in funding needs
☐ Unforeseen contingency such as a significant workload change

Short Summary of Request:

The CWCB is requesting on-going Cash Funds Exempt (CFE) funding in the amount of $101,469 from the CWCB Construction Fund for 1.0 FTE, a four-wheel drive leased vehicle, and leased space for the FTE and vehicle parking. The requested FTE, with the use of a state vehicle, will perform duties related to stream hydrography requirements related to instream flow protection, compact compliance and protection, decision support system analyses and modeling, and floodplain management.

Background and Appropriation History:

CWCB Stream Gaging Requirements

As the State's water planning and policy agency, the CWCB relies heavily on stream gage data in carrying out its mission to conserve, manage and protect the State's water resource. The CWCB currently relies upon stream gages operated by the Division of Water Resources (DWR), United States Geological Survey (USGS) and private entities in order to meet the needs of its mission critical program areas including Stream and Lake Protection, Compact Protection, Decision Support System Development, and Floodplain Management. However, CWCB gaging needs are often different from those of the DWR and USGS. Although many existing gages provide needed data, the DWR's mission is to

administer the state's water rights, while the USGS collects data for long-term scientific record purposes. As a result, stream gages are not always located where the CWCB needs them, nor are they necessarily designed to fit CWCB data collection parameters. The following examples provide additional clarification of CWCB gaging needs for its specific statutory programs as well as detailing how and why the existing stream gage network is often inadequate to meet CWCB's needs.

1. Instream Flow Water Rights

In order to preserve the Colorado's water dependent natural environment, the CWCB has appropriated over 1,500 instream flow (ISF) water rights covering over 8,000 miles of stream within the state. The CWCB has a legal requirement under Colorado water law (37-92-502 (5) (a) C.R.S. (2007)) to install stream gages as required by the State and or Division Engineer in order to administer those rights within Colorado's priority system. The CWCB is the largest holder of water rights in the State of Colorado and maintains these ISF rights in order to preserve the natural environment to a reasonable degree for the benefit of the people of the State. Unfortunately, most USGS and DWR gages are located on main stem streams whereas the majority of ISF rights are located on smaller tributaries. In addition, USGS and DWR gages are not typically designed to operate during the winter months. ISF rights are decreed for year-round protection of the natural environment and winter flow monitoring is often necessary.

2. Floodplain Protection

The CWCB must have gages in specific locations for the development of floodplain hydrology to assist in the prevention of flood damages; to enhance the accuracy of floodplain designations; and for flood alert systems to notify staff regarding events that may have impacts to life, safety, and property protection issues within the state. Many of the existing gages are either not properly located to achieve these objectives or need to be "hardened" so that they are not washed away during a flood event. Staff has worked with DWR and the USGS to harden some gages, but has not had the FTE resources to identify and address all of the agency's needs.

3. Compact Protection

Theoretically, many of Colorado's compact administration gages should be handled through the USGS National Streamflow Information Program (NSIP). Although this federal program will pay for 100% of the costs of operating a stream gage, inadequate funding for the NSIP program may eventually threaten Colorado's ability to meet its compact obligations. In addition, there has been some disagreement with the USGS on what constitutes a compact gage. While it is obvious that Stateline gages are required, many other gages are often necessary in order to appropriately administer the State's compacts and the USGS will not operate these gages without cooperator funding. Because of rising costs, cooperators have been reluctant to continue to fund many of these gages.

4. Decision Support Systems

Finally, the CWCB must continue to build upon its Decision Support System (DSS) - a tool that has enhanced the CWCB's and other water users' ability to conserve, develop, protect and manage Colorado's water resources. However, the DSS system is heavily dependent upon gage data, which is currently inadequate for the more detailed modeling exercises that need to be performed. DWR is not responsible for these activities and does not have the staff to meet these CWCB agency needs. In addition, the USGS is dropping gages rather than adding gages in Colorado because of funding limitations.

Funding and FTE Limitations and the continued loss of stream gages in Colorado.

The number of gages in Colorado has been decreasing at an alarming rate, and both the USGS and the DWR do not have either the FTE and/or funding resources to fully meet CWCB needs. Over the last five years, numerous USGS gages have been decommissioned in Colorado. There are currently nine additional gages that have or will be decommissioned this year. Appendix A provides additional documentation which outlines and discusses the decline of federally operated and maintained stream gages.

- **Federal Gaging Programs**

The USGS provides stream gaging data through either its Cooperative Program (Co-op) or its National Streamflow Information Program (NSIP). The Co-op program is a cost-sharing partnership where the USGS installs, operates and maintains gages for cooperating water resource entities at the state, local and Tribal levels. Historically, the

program operated under a 50:50 fund-matching arrangement. However, the Department of the Interior has not provided the USGS with adequate funding and, as a result, cooperator costs have steadily increased over the past 5 years with no end to the increases in sight. On average, cooperators now pay over 60% of the costs. These increasing costs have resulted in many cooperators dropping out of the program. When this occurs, the USGS abandons the gage.

On the other hand, the NSIP program is funded at 100% by the USGS. Gages under the NSIP program are identified by the USGS as high priority streamgages critical to public safety and long-term water resource assessment. However, this program has also not been adequately funded and, at this time, there are two critical stateline gages that the program has been unable to fund. In addition, as mentioned above, there is also some disagreement on which gages in Colorado should fall under this program.

As a result of the federal funding limitations for gaging and the resultant decommissioning of gages in Colorado, the CWCB has made requests through the Department of Natural Resources to Colorado's Congressional Delegation to increase funding for the USGS Cooperative and NSIP programs. In addition, the CWCB and other water resource entities throughout the West have written letters to the Secretary of the Interior in an effort to have federal funding increased for these gaging programs. Unfortunately, these requests have not produced adequate funding to halt the loss of gages. All expectations are that the water resources stakeholders will either incur the costs or gages will continue to decline. At this time, the average yearly operation and maintenance co-op stakeholder costs to operate and maintain a single streamgage is approximately $14,000 per year.

- **Colorado Division of Water Resources (DWR) Satellite Gages**

The DWR operates a system of approximately 400 satellite gages throughout the state for the purpose of administering water rights in the State of Colorado. These gages are located on streams and rivers, as well as on numerous diversion structures and ditches. DWR gages are often not adequate for CWCB programs because their primary function is for administrative purposes during the low flow irrigation season. As mentioned above, these gages are inadequate for many of CWCB's programs where data is needed

during high flow periods, in the winter months, or on smaller tributaries where there are ISF rights that need to be administered. In addition, DWR does not have the FTE resources to meet CWCB needs. Even if it were feasible to utilize other agencies' limited FTE resources, there would still be an associated cost to operate and maintain those gages and DWR does not have spending authority to utilize CWCB funds. The average cost to operate and maintain a DWR administrative gage is approximately $7,500 per year. These state costs are significantly lower than USGS operation and maintenance costs due, in part, to a larger overhead structure associated with the federal government.

Coordination and Cooperation

CWCB staff has coordinated with both the USGS and DWR in an attempt to use the existing stream gaging network to address CWCB needs. Staff meets quarterly with these agencies to discuss and attempt to resolve gaging issues. In some cases, this effort has been successful where mutual needs were identified. In these situations, the CWCB has provided some funding for equipment and installation costs. Operation and maintenance has often been accomplished through participation with other water resource stakeholders. However, in locations where the need is solely for CWCB purposes, the DWR cannot use its hydrographic FTEs to meet the CWCB's needs. The only option, in this case, is for the CWCB to use the USGS cooperative program. Installation costs for a full satellite monitoring gage vary, but are generally over $20,000. As previously mentioned, operation and maintenance averages $14,000 per year for the CWCB's share.

CWCB Stream Gage Funds

Recently, a Stream Gaging fund of $250,000 was authorized under Section 37-60-124.4, C.R.S. (2007), as part of the 2007 Projects Bill. Although the fund provides a mechanism to pay for gaging equipment and the operation and maintenance of some gages, it is insufficient to meet all of the agency needs listed above without a hydrographic FTE that can purchase and install the gaging equipment and continue to operate and maintain the equipment over an extended period of time.

General Description of Request: **1.0 FTE (Hydrographer)**

A senior level hydrographer (Professional Engineer II) is requested to manage the agency stream gaging needs including installation, operation, and maintenance of new CWCB stream gages. This FTE will also continue to expand the ongoing coordination and collaboration efforts with other entities such as the USGS, DWR and private water resource stakeholders.

The CWCB hydrographer will spend the low flow season of July through November installing, operating, and maintaining new CWCB gages. During the winter months of December through March, and the high flow months of April through June, the hydrographer will analyze and publish the stream gage records from the gaging stations as well as continue to provide maintenance functions at the gages. Measurement of flows and operation and maintenance will also be performed during the winter and runoff period. In addition, the hydrographer will utilize this time to seek out other entities that may want to financially cooperate with the CWCB on a given gage, and to plan the installation and order the equipment for new gages. Coordination, collaboration, and training with the USGS, DWR, and other entities on gaging activities will also occur during this period of time.

Tasks and Responsibilities

- In-house coordination and collaboration among the CWCB's program sections including the Instream Flow and Natural Lake Level Protection, Flood Protection, Intrastate Water Management and Development, Water Supply Protection, Water Information, Water Supply Planning and Finance, and Office of Water Conservation and Drought Planning will occur in order to further evaluate agency needs and identify new gage locations. (CWCB staff have already established a preliminary list of approximately 30 new gage locations).
- Evaluation of new gage sites to determine specific equipment and/or construction needs as well as property ownership evaluations and the structuring of agreements for permission to locate gages on Federal, State and private lands.
- Management of the CWCB's $250,000 stream gage fund.
- Ordering and purchase of new stream gage equipment as well as the replacement of outdated equipment.

- Overseeing the installation of CWCB gages as well as the continued operation and maintenance of such gages.
- Coordination and collaboration with other gaging entities, such as the USGS and DWR, to cost share on gages in locations where there are common stream gaging needs.
- Coordination and collaboration with the USGS and DWR on training and safety.
- Development and maintenance of stream gage records from new CWCB gages.
- Coordination and collaboration to obtain financial assistance from private entities that have a mutual interest in CWCB gage locations.

Over the years, the CWCB has attempted to rely upon a network of stream gages operated and maintained by either the USGS or DWR. However, the CWCB's mission to conserve, manage, protect, and restore the State's water resources is broad and encompasses many program areas which call for unique streamflow gaging needs. In addition, increasing costs and limited FTE resources have resulted in a situation where the CWCB's needs cannot be adequately met by the USGS or DWR alone. This coupled with an ever increasing demand for streamflow information due to new water resource-management issues has created a situation where hydrographic FTE resources are needed within Colorado's policy and planning agency. Managing Colorado's resources cannot be accomplished without stream flow gage data. Population growth; climate change; fire and flood dangers; new ISF water rights; new Decision Support System models; compact administration and negotiations; and the Statewide Water Supply Initiative coupled with the establishment of the Interbasin Compact Committee have all emphasized and created the need for these hydrographic resources within the CWCB.

The legislature has been cognizant of the CWCB's stream gaging issues and established a $250,000 fund in the 2007 CWCB Projects Bill in order to help meet these needs. However, FTE resources are also needed to install, manage, and operate the CWCB's stream gaging program and network of new gages. An FTE was not requested in the 2007 CWCB Projects Bill because funding from the CWCB Projects Bill is only used for project related activity and not to fund FTE.

The CWCB and DWR have had numerous discussions regarding CWCB's gaging needs and the DWR is in agreement with this decision item request. It is believed that installation, operation and maintenance of CWCB gages would be best accomplished through in-house FTE hydrographic resources.

An option that has been considered, to meet CWCB gaging needs, has been to pay the USGS to install, operate, and maintain new CWCB gages. This assumes that the Federal Government could supply all of the required gages with its existing FTEs in Colorado. In addition, as explained above, the co-op program administered by the USGS continues to shift more of the costs of operation and maintenance of gages to the cooperating entities. Within the last five years, these costs have risen from a 50/50 cost share ratio to the present average ratio of 60/40. It is expected that these cooperator costs will continue to rise. Many water resources entities have chosen to drop out of the co-op program as a result of these prohibitive costs. An analysis of the costs to install, operate, and maintain a gage for a CWCB hyrdographer vs. the USGS (assuming the current average cooperative ratio does not change) is outlined in the cost-benefit section.

Vehicle

A 4-wheel drive vehicle and hydrographic equipment will be necessary for the hydrographer to accomplish the agency gaging needs in all 7 water divisions in the state. Although the hydrographic equipment can be purchased with the Stream Gage fund, a leased vehicle is necessary as part of this request.

Currently, the CWCB has only three assigned state vehicles, which have been in very high demand by the CWCB staff, to use as transportation to accomplish statutory responsibilities. The three permanent vehicles assigned to the agency are: 1) Chevy Trail Blazer, 2) Ford Explorer, and 3) Dodge Durango. The Chevy Trail Blazer is permanently assigned to the Finance Section Construction Project Manager, who inspects all construction projects funded by the CWCB Construction Fund leaving only two vehicles for the remaining 43.2 staff members to share.

The idea of using the State motor pool or renting vehicles is not sensible for the hydrographer FTE and the tasks that will be required of the position. In order to

effectively operate and maintain a network of stream gages, the hydrographer will need to travel on a regular basis to measure flows, maintain and install equipment, and attend meetings. In addition, many of the anticipated gages will be located in areas with limited access to state, county or Forest Service Roads and off-road 4-wheel drive access will therefore be required. Finally, most of the equipment necessary to perform the hydrographic tasks will need to be permanently stored in the vehicle. It would not be feasible to move the needed equipment from the office to the vehicle and back again on a regular basis or to move it from vehicle to vehicle when using the motor pool or a rental vehicle.

Leased Space

Associated with this submission is a request for additional leased space for 1.0 FTE (Professional Engineer II) and for a parking space for the state vehicle.

The CWCB's offices are located in two buildings in the downtown Denver area which accommodate the current staff of 43.2 FTE. The main office is located in the Centennial Building at 1313 Sherman and the other office is at 1580 Logan Street. The main location in the Centennial Building does not have enough space to house all employees in one location; therefore, two sections were moved to the Logan location in 2002. These sections are the Water Supply Planning and Finance Section, which has 6.0 FTE, and the Water Information Group of 5.0 FTE.

Current space, at the CWCB Sherman Street and Logan Street offices, cannot accommodate new FTEs. In submitting this decision item request, the CWCB is being pro-active in avoiding a leased space crisis that would follow the approval of FTE requests. The preferred location for the additional space is at the Logan Street location, where two of the CWCB sections' staff members are housed currently.

In addition, the CWCB is requesting funding for a parking space for the state vehicle associated with this request.

Consequences if Not Funded:

By not funding this request, the CWCB would be unable to continue to effectively and efficiently carry out its mission as outlined in the CWCB strategic plan as follows:

- To conserve the waters of the State for wise and efficient beneficial uses;
- Develop waters of the State to preserve the natural environment to a reasonable degree and fully utilize State compact entitlements;
- Protect the waters of the State for maximum beneficial use without waste; and
- Manage the waters of the State in situations of extreme weather conditions – both for flood and droughts.

There are a number of reasons that the CWCB will need to install new gages in cooperation and collaboration with other entities throughout the state. First, there has been a substantive decrease in stream gaging participation from the Federal Government and other stakeholders along with a substantial corollary increase in stream gaging costs. Second, the recent drought, the threat of long term climate change, an increase in fire and flood threats, and an increase in Colorado's population are all of great concern to the CWCB, which is responsible for the water resource policy and planning decisions that will need to be made to address these changes. Third, water resource plans and policies, with the dual goals of supporting new infrastructure to meet future consumptive needs while still preserving Colorado's water dependent natural environment and other non-consumptive needs, cannot be developed without sound scientific data obtained from a strong network of stream gages. Without a hydrographer to install, operate, and maintain new gages, and to coordinate with existing stakeholders in the collection of stream gage data, it will be impossible to adequately address the existing and future water resource challenges that the CWCB must address under its statutory authorities. Specific consequences are as follows:

- Staff would be unable to adequately monitor and protect Colorado's decreed instream flow water rights. The existing limitations on monitoring and protection resulting from inadequate gaging resources have been recognized as a major shortcoming of Colorado's instream flow program, which was authorized under 37-92-102 (3) (a) through (e) C.R.S. (2007). Numerous environmental, water development, and private stakeholders have publicly criticized the State for its

inability to protect its water rights which are held in trust by the CWCB for the benefit of the people of the State of Colorado. Stakeholder frustration over this issue has resulted in arguments against state-held ISF rights and in favor of privately held ISF rights. Ballot initiatives and proposed legislation to change Colorado's ISF statutes are likely if the state cannot fully monitor and protect its ISF water rights.

- There would be the limited ability of CWCB staff and others to accurately and adequately perform detailed water availability and other modeling exercises within Colorado's Decision Support System (CDSS) at ISF sites due to a lack of stream gage data or the loss of existing gage sites due to funding cutbacks by others.

- Without a hydrographer to perform the work, some gages will not be in place that would aid the CWCB in its statutorily mandated activities related to flood protection. For example, the development of floodplain hydrology; the prevention of flood damages; and the assistance that CWCB staff provide in state floodplain designations could be hampered.

- CDSS modeling capabilities are crucial to the Board's ability to make timely, well informed decisions using the CDSS modeling capability. Without the installation, operation, and maintenance of new CWCB gages by a professional hydrographer, accurate and detailed models may not be possible in some circumstances. This is especially important in understanding potential compact administration outcomes within the Colorado River Basin and how a potential "compact call" could affect all parts of the Colorado River Basin in Colorado.

By not funding this decision item, the CWCB will find it difficult to supply answers to Colorado's citizens on important issues related to increasing populations and adequate water supplies; consumptive vs. non-consumptive needs; impacts on timing, duration and the amount of water available due to climate change; the desire of many to protect water resources in the basin of origin; and the desire to protect existing agricultural uses. These are all important policy questions that have been identified in the Statewide Water Supply

Initiative and the Inter-basin Compact Commission and associated basin round-tables. Again, gaging data is crucial to making informed water resource decisions and in managing this very limited and valuable resource. Furthermore, without the associated vehicle, the FTE would not be able to perform required task of installing, operating, and maintaining new stream gages throughout the state.

Calculations for Request:

Summary of Request FY 08-09	Total Funds	General Fund	Cash Funds	Cash Funds Exempt	Federal Funds	FTE
Total Request	$101,469	$0	$0	$101,469	$0	1.0
1.0 FTE (PE II Hydrographer) Personal Service related costs	$88,676	$0	$0	$88,676	$0	1.0
Equipment (computer, phone, office equipment and software)	$4,405	$0	$0	$4,405	$0	
State Vehicle Lease (8-year lease) for a Quad cab pickup truck (SFM type F8) and camper shell; 4 months of payments in FY08-09 + $14.50 State Fleet Management Fee	$1,374	$0	$0	$1,374	$0	
Variable Mileage Rate ($0.41/mi x 2,100 miles x 4 months) – Operating	$3,444	$0	$0	$3,444	$0	
Leased Space (Parking) for 4 months	$420	$0	$0	$420	$0	
Leased Space for FTE	$3,150	$0	$0	$3,150	$0	

Summary of Request FY 09-10	Total Funds	General Fund	Cash Funds	Cash Funds Exempt	Federal Funds	FTE
Total Request	$108,880	$0	$0	$108,880	$0	1.0
1.0 FTE (PE II Hydrographer) Personal Service related costs	$89,065	$0	$0	$89,065	$0	1.0

Summary of Request FY 09-10	Total Funds	General Fund	Cash Funds	Cash Funds Exempt	Federal Funds	FTE
Annual operating (supplies and phone)	$950	$0	$0	$950	$0	
State Vehicle Lease (8-year lease) for a Quad cab pickup truck (SFM type F8) and camper shell; 12 months of payments in FY09-10 + $14.50 State Fleet Management Fee	$4,123	$0	$0	$4,123	$0	
Variable Mileage Rate ($0.41/mi x 2,100 miles x 12 months) – Operating	$10,332	$0	$0	$10,332	$0	
Leased Space (Parking)	$1,260	$0	$0	$1,260	$0	
Leased Space for FTE	$3,150	$0	$0	$3,150	$0	

Assumptions for Calculations:

1.0 FTE (Professional Engineer II - Hydrographer)
The salary information is based on the FY2008-09 figures that were provided in the POTS template attachment for salaries. The salary of $6,485 per month is the range minimum for a Professional Engineer II. It totals to an annual salary of $77,820.
Personal Services = Salary ($77,820) + 10.15% PERA ($7,899) + Medicare 1.45% ($1,128) + 1.6% AED ($1,245) + SAED ($584) = $88,676

Annual Operating for FY08-09: includes computer ($900), supplies ($500), Office Suite software ($330), Office equipment ($2,225), Telephone base ($450) = $4,405

Vehicle Lease 4-wheel drive
State Fleet Management provided the data for cost associated with a new 4-wheel drive vehicle. The lease cost for a large 4-wheel drive crew quad cab pickup truck and a camper shell (Toyota Tundra, Dodge Ram, Ford F-150 or similar) for 96 months is $344 per month, which includes a $14.50 management fee that State Fleet Management charges. For the first year, the CWCB would only pay for four months since the vehicle will be delivered in March, which is $1,374 ($343.61 x 4 months). In the second through seventh years, the CWCB would pay $4,123 per year ($343.61 x 12 months). In the eighth year of the lease, the CWCB would pay $2,749 ($343.61 x 8 months).

The variable mileage rate was calculated by taking the CWCB's total miles from fiscal year 2005-2006 and then dividing the total miles driven by 12, which totals a monthly figure of 2,100 miles per month (25,200 miles/12 months). State Fleet Management quoted the CWCB a figure of $0.41 per mile for the variable rate. The totals for the variable rate costs are:

- FY08-09: $3,444 (2,100 x $0.41/mi x 4 months) and
- FY09-10: $10,332 (2,100 x $0.41/mi x 12 months).

The chart below explains the vehicle costs for FY08-09 and FY09-10 in a table format:

Item	Costs: fund a state vehicle
State Vehicle Lease (8-year lease) for 4WD; includes lease + $14.50 State Fleet Mgmt Fee	FY08-09: $343.61 x 4 months = $1,374; FY09-10: $343.61 x 12 months = $4,123
Variable mileage rate ($0.41/mile)	FY08-09: $0.41 x 2,100 miles x 4 months = $3,444 FY09-10: $0.41 x 2,100 miles x 12 months = $10,332
Annual Vehicle Cost Totals:	**FY08-09: $4,818 (4 mo's);** **FY09-10: $14,455 (12 mo's)**

Leased Space

The Leased Space amount was calculated by using data obtained from Staubach Group, which is the Real Estate Agency for the State of Colorado. The Staubach Group anticipates the average square foot rate for businesses in downtown Denver to be $18 per square foot for the 2008-09 fiscal year. The CWCB needs 175 square feet for this new FTE, which is an average sized office or cubicle for the classification level of the new staff member and is similar to the standards of current staff. Therefore, the CWCB is requesting funds in the amount of $3,150 for 175 square feet of space for the new FTE (175 square feet x $18 per square foot = $3,150).

In addition, the CWCB will need to lease a parking space for the new state vehicle. The monthly fee for a parking space at the parking garage located at 14th and Lincoln is $105

per month. For FY08-09, the CWCB is requesting $420 ($105 per month x 4 months) for a leased space parking place since the vehicle will not be delivered until March. Then, in future years, the cost would be annualized to $1,260 ($105 per month x 12 months).

Impact on Other Government Agencies: The addition of a hydrographer to CWCB staff would enhance the cooperative gaging efforts between the CWCB, DWR, and the USGS. CWCB gages could potentially be used by these other agencies to address their needs. In addition, the CWCB hydrographer would be able to aid in the operation and maintenance of cooperative gages run by either the DWR or USGS where the CWCB has a vested interest. This could result in a cost savings to these other agencies.

Cost Benefit Analysis:

Benefits	**Cost**	**Ratio**
The benefit is calculated based on the cost to pay the USGS to operate and maintain 15 additional gages for the CWCB. Each USGS gage will cost the state $14,000* per year to operate and maintain. Installation costs will come from the $250,000 gaging fund established in the 2007 CWCB Projects Bill. Because installation costs would remain approximately the same whether the USGS or the CWCB hydrographer installed the gage, these costs are not included in this cost benefit analysis	The total amount that is requested is $101,469	($14,000 / gage x 15 = $210,000) $210,000 / $101,469 = 2.07

Without a hydrographer, the installation, operation and maintenance of the additional gages would come solely from the $250,000 gaging fund established in the 2007 CWCB Projects Bill. Therefore, less than half of the required gages could be installed and operated by the USGS using this fund. Each gage costs approximately $20,000 to install. 7 gages x $20,000 installation each = $140,000. 7 gages x $14,000* O&M each = $98,000 Total of 7 gages = $238,000 If all of the gaging fund monies are given to the USGS for the installation and operation of new CWCB gages, there will be no funding left to continue cooperating with the USGS and/or DWR on other gages that are of interest to the CWCB.		
The State of Colorado holds over 1,500 Instream Flow Water Rights and is the largest holder of water rights in the state. These rights are held in trust for the people of the State. In Colorado's prior appropriation system, an unprotected water right is of little value. Gages are needed to administer the state's rights in priority and therefore protect their economic value. This cost-benefit factor is therefore based on the cost of a hydrographer verses the lost value of the state's rights. CWCB staff has estimated that there is an immediate need for a hydrographer to install and maintain 13 additional gages (assuming 3 in FY07-08 and 10 in FY08-09 assuming approval of this decision item), which would provide physical protection of an additional 122 miles of ISF rights. These rights total 293,501 acre feet of water per year. Assuming a conservative annualized cost of water of $1,000 per acre-foot (capital cost range from $12,000 to $17,000 per acre-foot); this would create a loss to the state of $293,501,000. Note that this analysis does not include the value of water left in the streams, which in turn, helps to promote tourism and its associated economic value to the state. Therefore, this analysis is conservative.	The total amount that is requested is $101,469	The value of protecting 122 additional miles of ISF rights vs. the cost of a hydrographer on a yearly basis: $293,501,000 / $101,469 = 2,893
Without a hydrographer, there would be a diminished ability for the		

CWCB to meet its statutorily mandated activities related to flood protection. A specific cost benefit analysis is not provided because it is impossible to assess flood risks and the associated reduction in risk that additional gages could provide. However, additional gages installed and operated by a CWCB hydrographer could aid in the prevention of flood damages by providing hydrologic data for accurate floodplain delineations which, in turn, would assist staff in the protection of millions of dollars of public and private property. It is estimated that flood related damages total over a billion dollars per year in the United States.		

* These analyses do not take into account the continued rising cost of gages in the USGS cooperative program that would occur over time. In addition, the cost of $14,000 represents the CWCB's share of the cost to install, operate, and maintain a gage.

Implementation Schedule: FTE

Task	Month/Calendar Year
Write Position Description Questionnaires and complete related Human Resource transactions	May 2008
Advertise for Position	Late May, 2008
HR Candidate Review, CWCB Interview and Hire new positions	June, 2008
New Employee Begins	July, 2008

Implementation Schedule: Vehicle Lease for 4-wheel Drive

Task	Month/Calendar Year
State Fleet posts an RFP on Bids	September 2008
Award Bid to vendor	October 2008
Order forms for new vehicles are sent to agencies	November 2008
4-wheel drive vehicle is delivered to the agency	March 2009

Implementation Schedule: Leased Space

Task	Month/Calendar Year
Contact Staubach Group about vacant lease space	May 2008
Negotiate with building owners about price and start contract with building owners	June 2008
Complete contract with all approvals and move into new space	July 2008

Statutory and Federal Authority:

37-60-106 C.R.S. (2007): The statute outlines the duties of the Colorado Water Conservation Board.

37-92-102 (3) (a) through (e) C.R.S. (2007): The statute outlines the duties of the Instream Flow and Natural Lake Level Protection Section of the Colorado Water Conservation Board (CWCB). It provides authority to the CWCB to appropriate, acquire, and protect water rights in order to "correlate the activities of mankind with some reasonable preservation of the natural environment."

Performance Measures:

Performance Measure CWCB #1 (Protect additional miles of decreed instream flow water rights): With the new hydrograper installing, operating, and maintaining stream gages, an additional ten gages will be installed, which represents protection of approximately 122 additional miles. Without the hydrographer, only 3 gages will be installed (by the USGS or the Division of Water Resources), which would supply protection of only 37 total stream miles. In other words, we believe that this decision item will help the CWCB to protect an additional 85 stream miles in FY08-09 with similar results in future years.